3.0 REVIEW OF AVAILABLE DATA

Prior to review of available data, data was obtained and compiled from various sources. Numerous organizations were contacted as part of this process including the Long Island Sound Study Program, the National Ocean Service (NOS), the USGS, US EPA, USACE, the City of New York, University of Connecticut, and State University of New York (SUNY) at Stony Brook. The following major Long Island Sound physical oceanographic data sets have been identified:

- NOS (1988-1990) throughout LIS
- SUNY (1989) throughout LIS
- City of New York (1995) Western LIS
- USACE (1997-1998) Eastern LIS
- UCONN (1980-present) throughout LIS

NOS, SUNY, and City of New York data sets have been obtained electronically and are summarized below. The USACE 1997-1998 data were collected at the New London disposal site are described in a draft report (SAIC, 1999) and will be obtained electronically in the near future. UCONN data were collected at numerous locations and will be obtained, if possible.

Other important hydrodynamic data on Long Island Sound have historically been collected. In particular, measurements were collected to support the previous disposal site selection and evaluation processes from the 1950s through 1980s (e.g., NUSC, 1979 and Nalwalk et al., 1973). In general, hydrodynamic data associated with these studies is not available electronically. Also, earlier studies resulted in relatively modest data sets compared to more recent surveys due to limitations in data collection technologies during those time periods. Some of these earlier studies featured data collection at existing disposal sites (e.g., USACE, 1985 and USACE, 1982) and are, therefore, useful to the present EIS process. These data will be presented and summarized as part of the hydrodynamic data review. Since these data are not available electronically, they will not be included in the Long Island Sound hydrodynamic database. It is recognized that other useful historic hydrodynamic data may exist. Additional historic data will be gratefully received and reviewed and will be included in the EIS hydrodynamic evaluation, if deemed appropriate.

Figure contains a map of Long Island Sound with existing hydrodynamic data collection locations, study sponsor, and sampling location number indicated. Seasons and durations of previously collected hydrodynamic data are provided in Table 1. Table 1 presents calendar time periods and durations for each data set with the year of data collection indicated in the left column. Long Island Sound regions are color-coded as indicated in the legend. Figure through Figure present data sets collected during each

FIGURE 4 COMPILATION OF HYDRODYNAMIC SAMPLING LOCATIONS IN LONG ISLAND SOUND

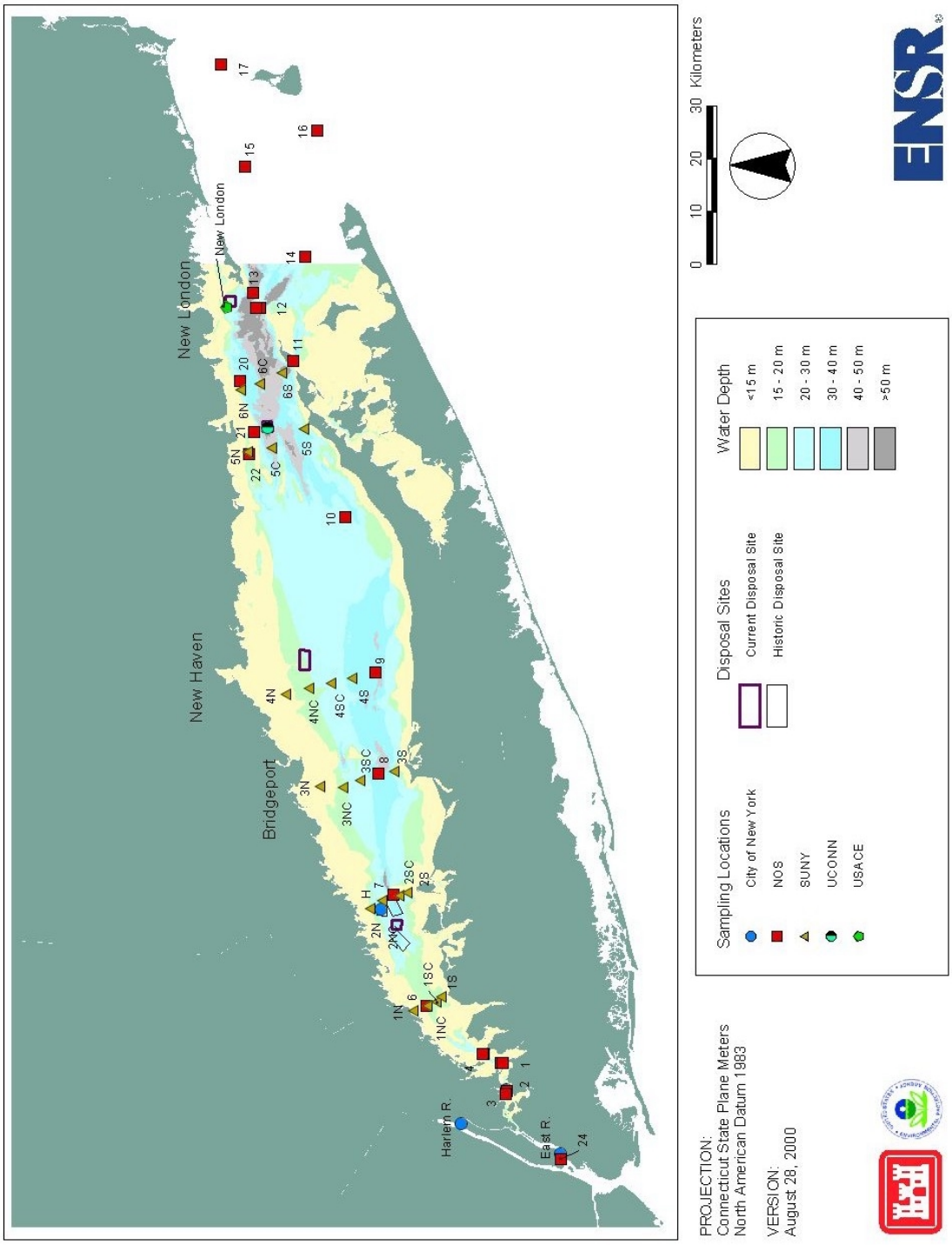


TABLE 1 SEASONAL HYDRODYNAMIC DATA COLLECTION SUMMARY

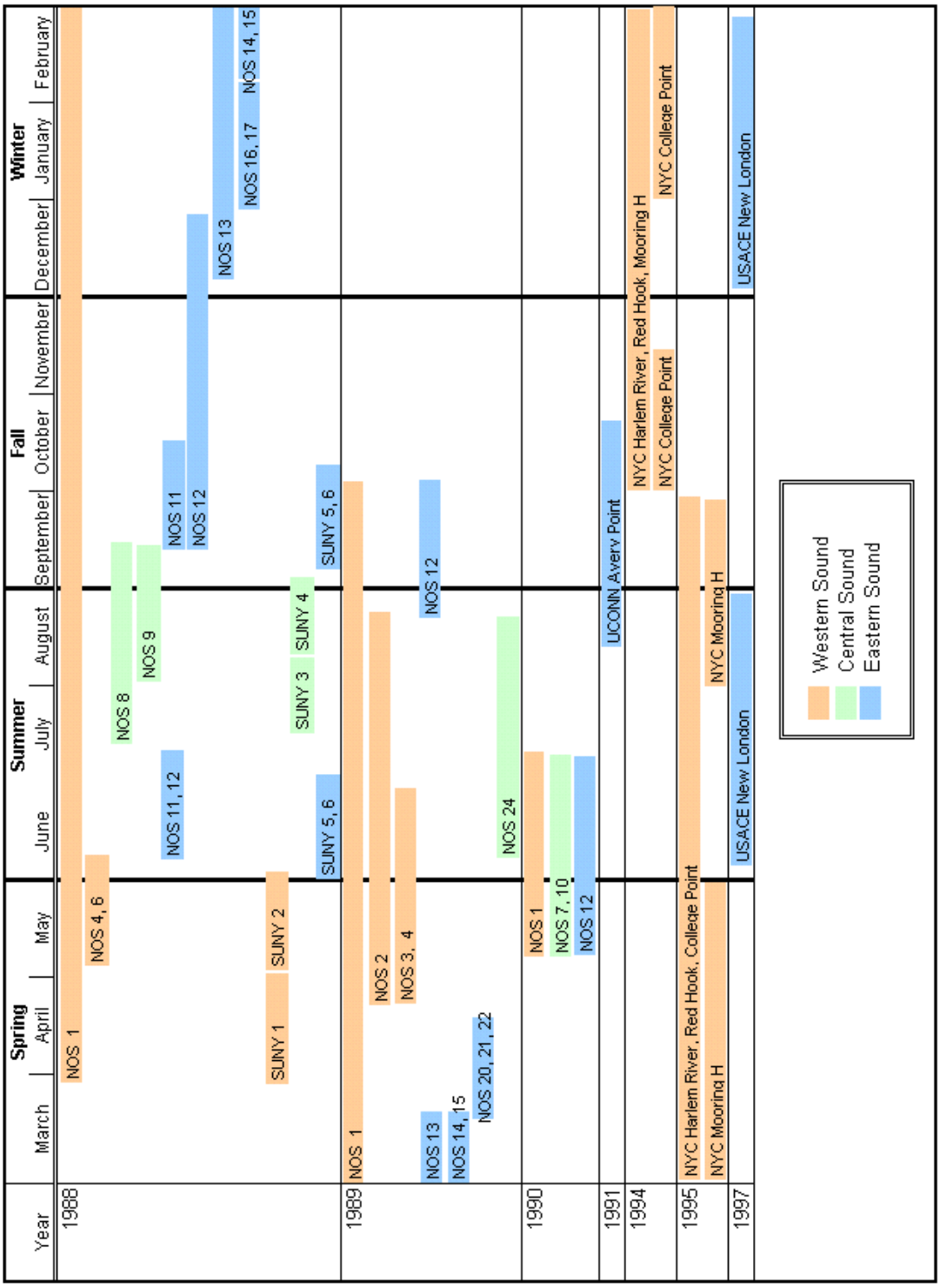


FIGURE 5 SPRING HYDRODYNAMIC SAMPLING LOCATIONS

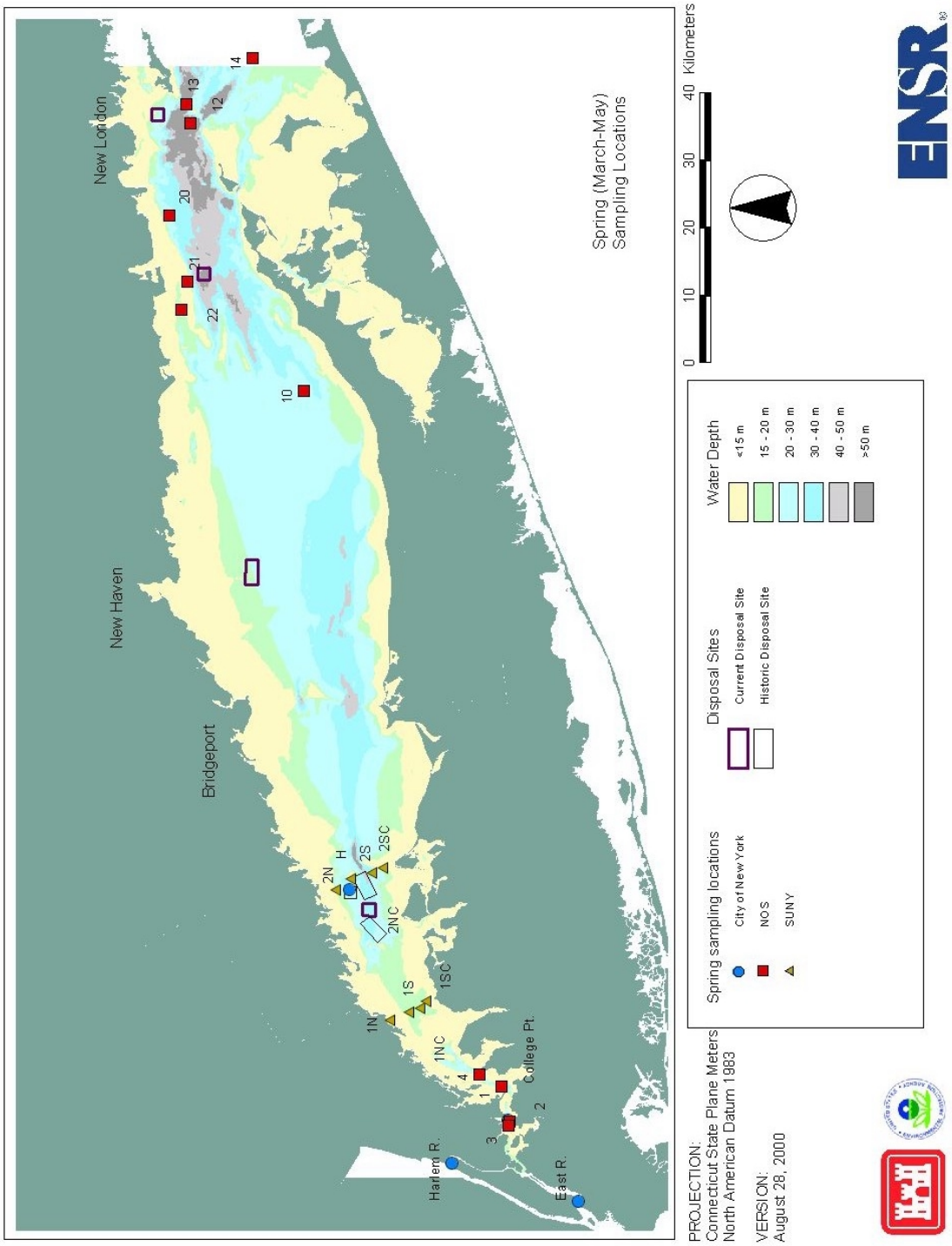


FIGURE 6 SUMMER HYDRODYNAMIC SAMPLING LOCATIONS

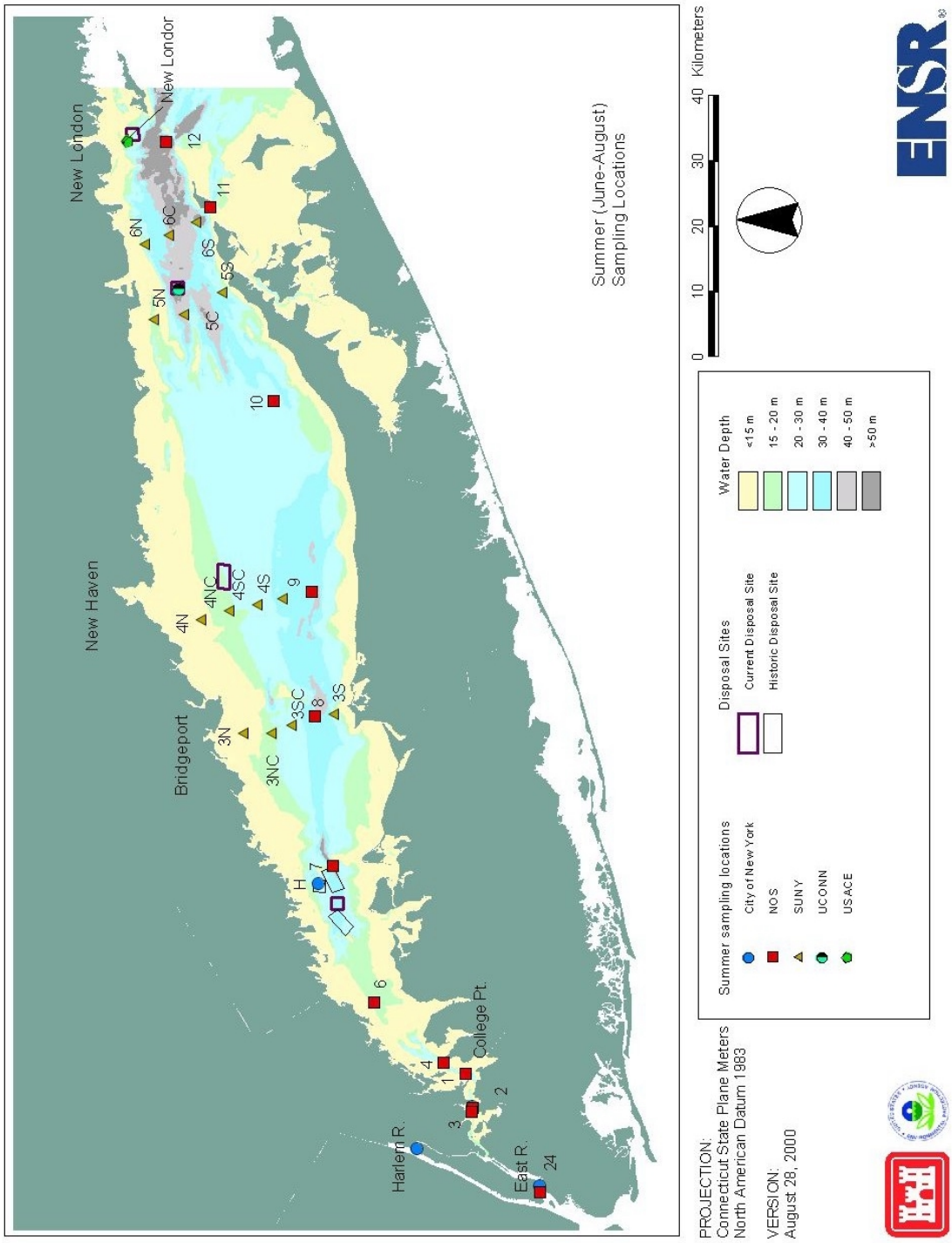


FIGURE 7 FALL HYDRODYNAMIC SAMPLING LOCATIONS

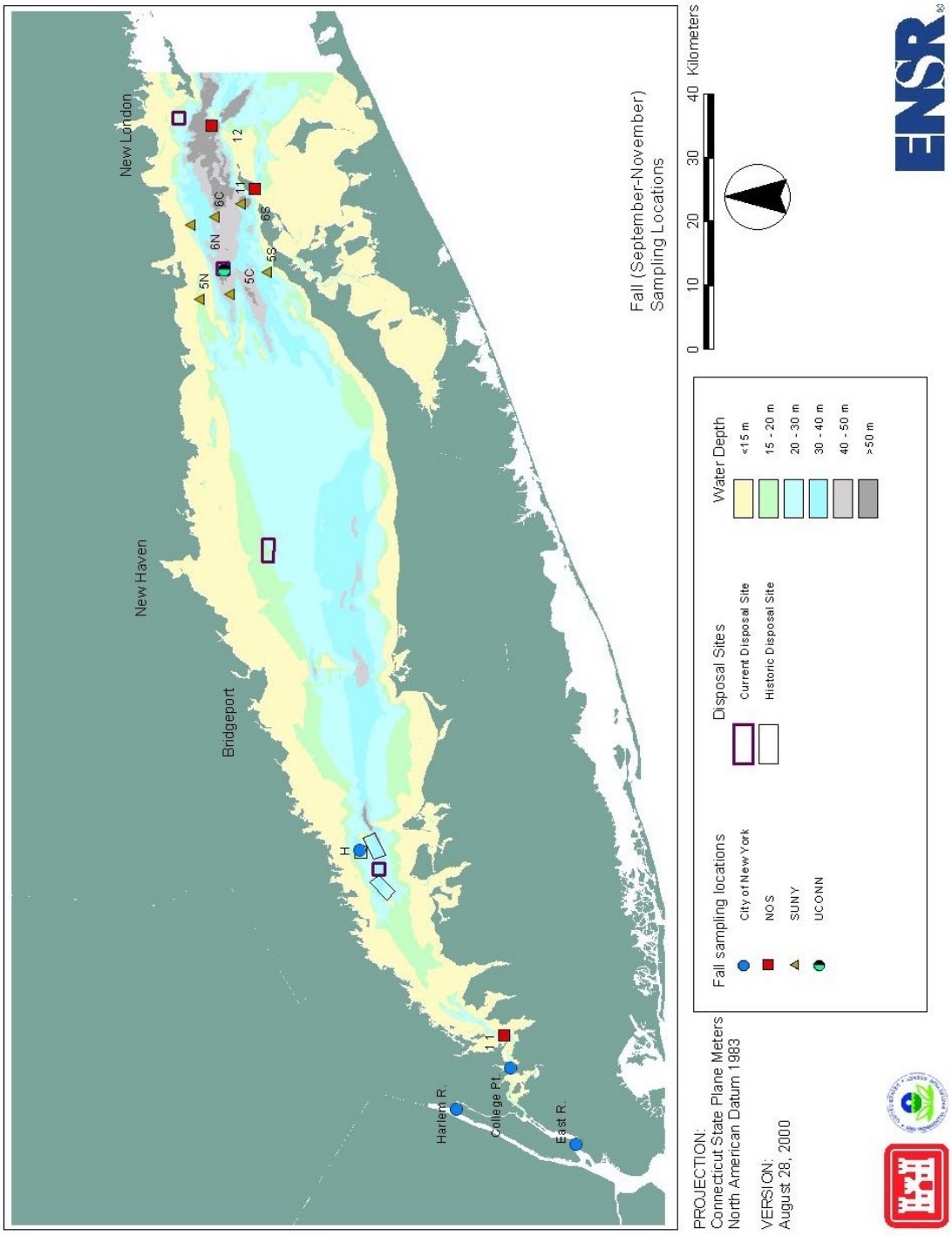
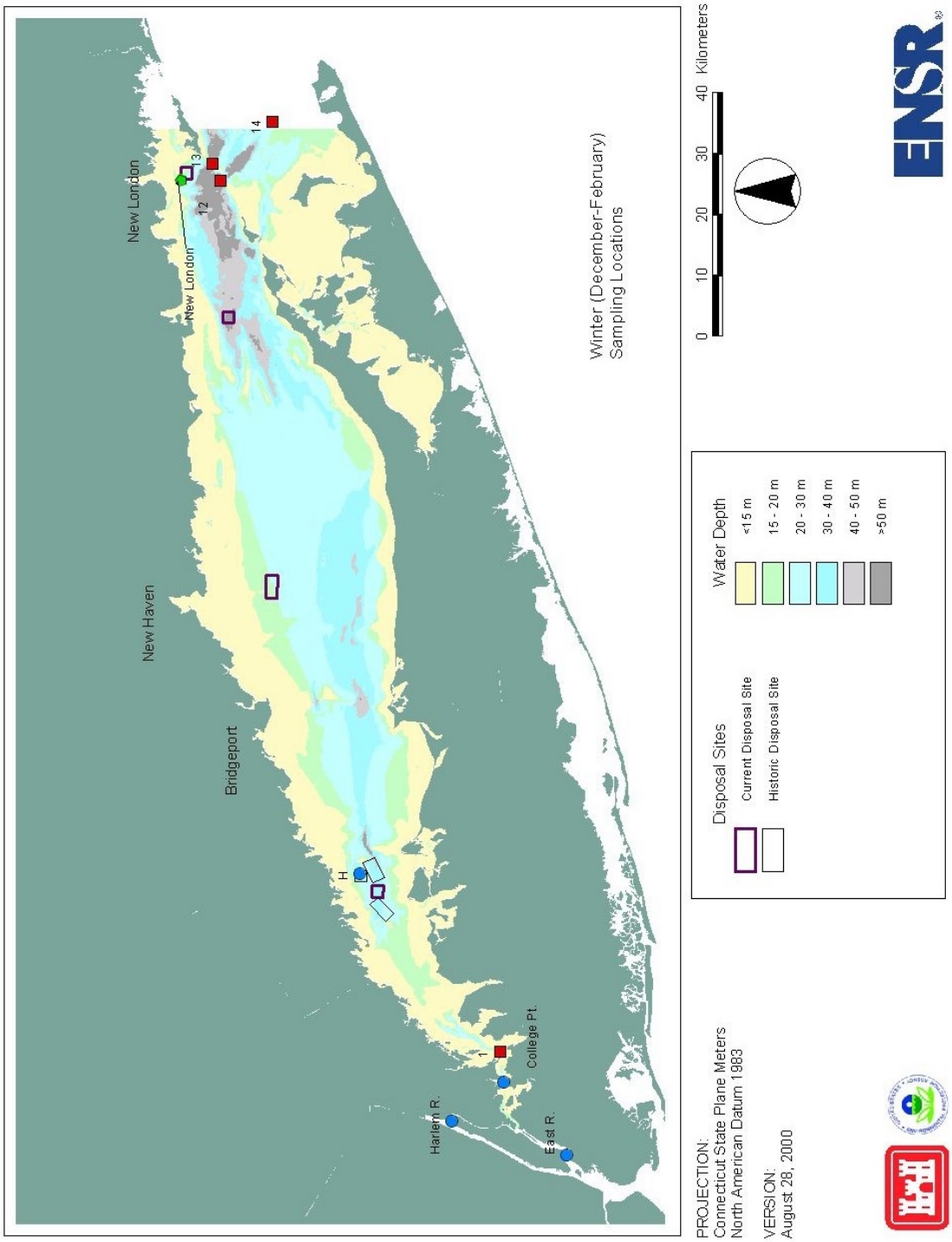


FIGURE 8 WINTER HYDRODYNAMIC SAMPLING LOCATIONS



season. Each of the data sets is summarized below. Following the summary of each data set, specific observations of data quality, spatial coverage, and seasonal coverage of the existing hydrodynamic data in Long Island Sound are summarized (Sections 3.6 - 3.9). Summaries of existing data in the Western, Central, and Eastern regions of Long Island Sound are also provided in Section 3.7.

3.1 NATIONAL OCEAN SERVICE (NOS) DATA

The U.S. EPA coordinated the multidisciplinary Long Island Sound Study (LISS) in order to support development of a comprehensive conservation management plan for Long Island Sound. The result of the study included the application of hydrodynamic and water quality models to explore circulation and transport processes, prediction of distribution of dissolved oxygen and nutrients in the Sound, and a set of recommended actions to improve water quality. The Estuarine and Ocean Physics Branch of NOAA's National Ocean Service (NOS) was tasked with acquisition of hydrodynamic data for the calibration and validation of the hydrodynamic model of Long Island Sound.

NOS conducted the Long Island Sound Oceanography Project (LISOP) from April 1988 to July 1990. Water velocity measurement locations are presented in Figure . All water velocity measurements were collected using acoustic Doppler current profilers (ADCPs) recording continuously and collecting measurements at one meter depth intervals throughout the water column. Table presents the dates of water velocity meter deployments. A project summary report (Earwaker, 1990) contains a complete description of LISOP data collection activities.

The LISOP program also featured collection of water level measurements at 18 locations around the shoreline of the Sound. Five of the locations support long-term water-level measurement stations. Measurements were recorded at the other 13 stations for periods of 0.25 to 12 months. Water elevations were measured with one of two types of pressure gauges: analog to digital recorder gage or nitrogen pressure driven bubbler gage. Tide staff gauges were also installed at each location, where observers recorded daily readings. No wave gauges were deployed as part of the LISOP program.

LISOP was conducted in three phases during 1988-1990 (Earwaker, 1990). Phases I and II were conducted from April 1988 to September 1999. Phase III was conducted from May to July 1990. The study area extended approximately 217 km, from the south entrance of the East River, through the East River and Long Island Sound to the outer boundaries of Block Island Sound. Table summarizes the surveys that were conducted during each phase.